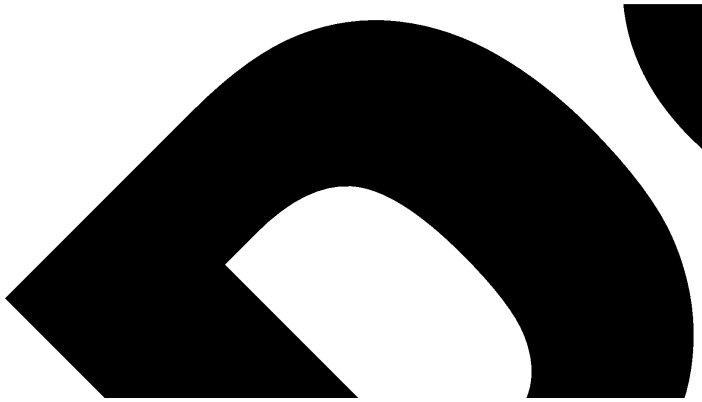

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INTELLIGENCE

Intelligence Memorandum

North Vietnam's Petroleum Pipeline

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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
December 1968

INTELLIGENCE MEMORANDUM

North Vietnam's Petroleum Pipeline

Summary

An indication of the continuing efforts of the North Vietnamese to improve their logistical system south of the 19th Parallel is a petroleum pipeline that has been observed under construction west of Vinh. Ultimately, the pipeline may deliver gasoline and diesel fuel to enemy transport units in Laos and the southern Panhandle of North Vietnam. Two segments, totaling about 45 miles, have so far been identified. When the pipeline is operational, petroleum may enter it at Vinh, or even north of the 19th Parallel at ports and inland waterways that can economically transport petroleum to the beginning of the pipeline.

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The pipeline was first observed in photography [redacted] and has an estimated capacity of about 1,100 metric tons a day, an amount several times in excess of North Vietnamese requirements for petroleum in the Panhandle of North Vietnam and Laos. Although there is little economic justification for building the pipeline, the North Vietnamese probably believed that while the bombing was continuing a pipeline would greatly reduce the need to move petroleum by means of more vulnerable tank trucks.

The North Vietnamese apparently intend to continue the construction and expansion of the pipeline

Note: This memorandum was produced solely by CIA. It was prepared by the Office of Economic Research and was coordinated with the Office of Current Intelligence and the Director's Special Assistant for Vietnamese Affairs.

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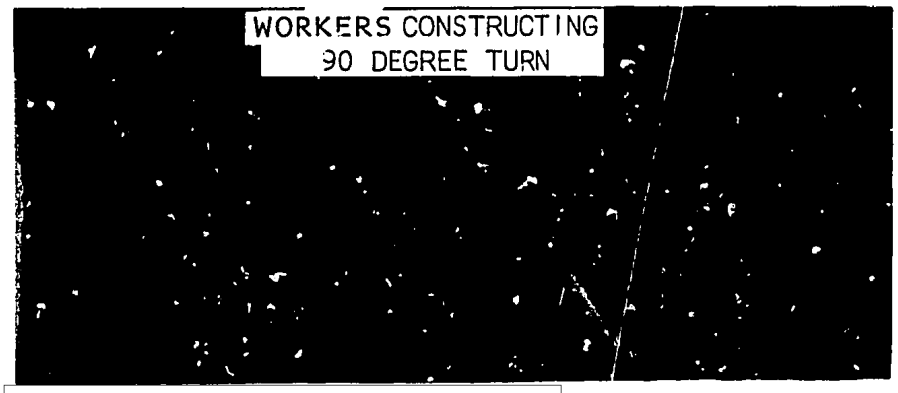
even though the bombing has halted. Several small portions of the pipeline have been built since 1 November. Continued construction of the pipeline may reflect a North Vietnamese intention to insure a capability for relatively unimpeded petroleum movement in the event bombing is resumed.

EXAMPLES OF PIPELINE CONSTRUCTION



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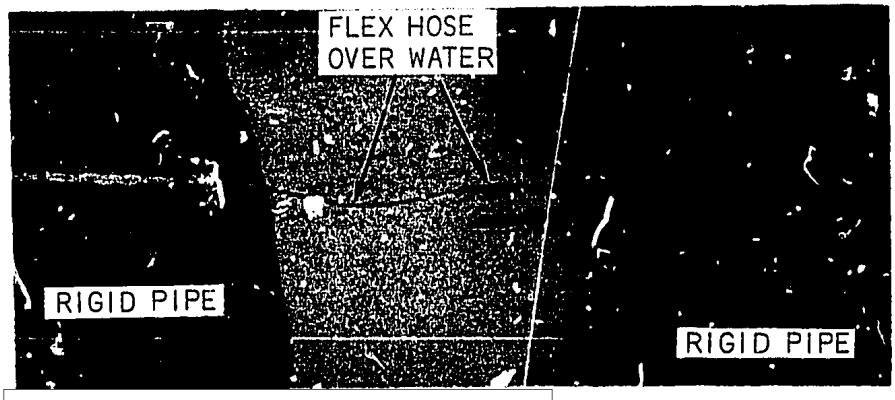

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Location and Characteristics

1. A petroleum pipeline west of Vinh was first observed [redacted] The pipeline -- 22 miles of which were identified at that time -- has since been extended, in two segments, to a length of 45 miles (see the map). The longest segment, 40 miles in length, runs in an approximately north-south direction from Trinh Son, 20 miles northwest of Vinh, to Huong Thu, 20 miles southwest of Vinh. A second five-mile segment of the pipeline runs west from the Vinh petroleum storage site [redacted] to a point less than 10 miles from the main north-south segment of the pipeline. There is no evidence that either segment is operational or that the present terminals represent the final limits of the line. It would not be uncommon for the Communists to build several segments simultaneously and then join them, resulting in a sudden completion of the entire line.

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2. Pipe used in the system is apparently 4 inches (100-mm) in diameter in 19-foot (6-meter) lengths. Most of the pipe is exposed on the surface of the ground, but sections of it are buried, and at water crossings the pipe is weighted to lie on the river bottom.* The throughput capacity of the line is probably about 1,100 tons per day, based on the capacity of a 4-inch Soviet portable pipeline system operating over a moderate gradient under combat conditions. Trained personnel using special equipment to separate liquids could transport two types of fuels through the line, most probably gasoline and diesel fuel, the products for which there is the greatest demand.

Requirements for Petroleum

3. The capacity of the pipeline far exceeds requirements. During 1968, requirements for petroleum products for North Vietnam south of the 19th

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** There is evidence that different grades of pipe are used in the pipeline. Environmental conditions probably account for the variation in grades, and different means of joining the pipe -- welding, screwed couplings, and flexible gaskets and clamps -- probably also are employed. Pipe of 4 inches in diameter is the smallest that is readily available from Communist and Free World producers.*

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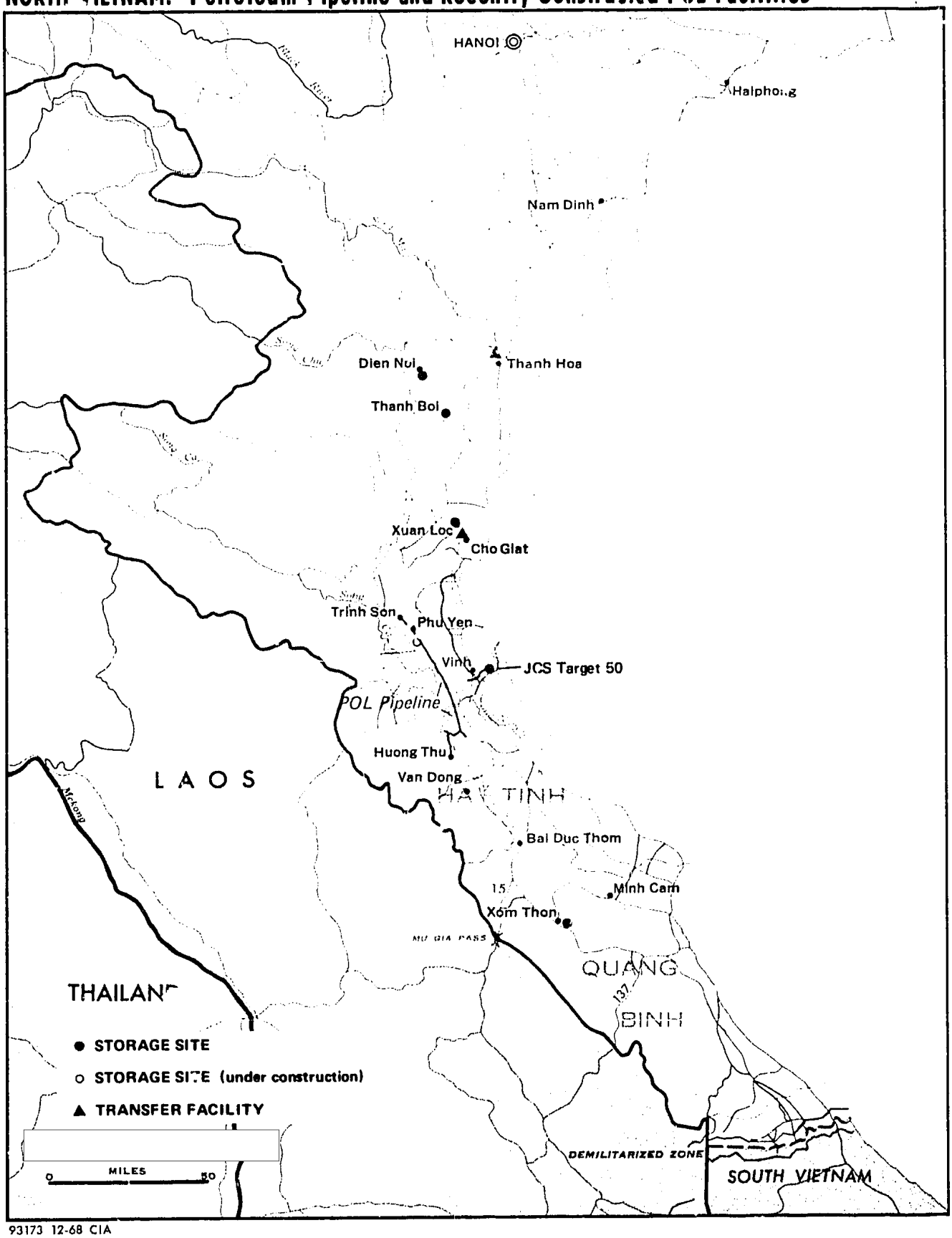
NORTH VIETNAM: Petroleum Pipeline and Recently Constructed POL Facilities



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[redacted] 25X1

Parallel and for southern Laos -- primarily to sustain military truck transport -- are estimated at about 250 tons per day.* Moreover, total North Vietnamese imports of petroleum in 1968 have averaged only 1,000 tons per day, compared with the pipeline's capacity of 1,100 tons.

Construction Pace

4. The pace of construction has been slow since the pipeline was first identified in [redacted] 25X1 1968, but the line could be expanded rapidly. The ease of constructing a pipeline that lies on the ground or is buried in shallow trenches is illustrated by Soviet experience. Experienced engineering troops (presumably one battalion) apparently can lay up to 18 miles of a portable pipeline in a 24-hour period. Similarly, ancillary petroleum storage facilities with tanks of 6 to 25 tons capacity each can be rapidly constructed.

5. There are indications that the North Vietnamese will continue the construction of the pipeline system despite the general easing of their transport problems since the bombing halt. [redacted] 25X1

[redacted] 25X1

* *Tonnage figure based on a percentage distribution, by area, of the total petroleum imported by North Vietnam during the first 11 months of 1968 as well as on consumption estimates for the estimated inventory of transport equipment operating in southern Laos.*

[redacted] 25X1

Future Extensions

6. To the south, the pipeline system could be expanded to serve military consumers in Laos, Route Package I, and the DMZ. The most direct route to these consumers would be south through Route Package I to Bai Duc Thom, near the Mu Gia Pass entrance to Laos; then further south to Route 137, the other major entry point to Laos; and then to the DMZ.

7. To the north the pipeline might be expanded or connected by means of feeder lines to ports with access to the ocean or major inland waterways. Virtually all of North Vietnam's imports of bulk petroleum are delivered by tankers to Haiphong and are then moved by watercraft via inland waterways and the coastline as far as possible before transfer to trucks, railcars, or storage areas. North Vietnam's present fleet of petroleum carriers -- numerous converted barges and coasters with capacities up to 450 tons, and three small tankers with capacities of 300, 500, and 1,600 tons, respectively -- are more than adequate to deliver petroleum directly to an expanded pipeline system. The port most capable of feeding the completed portion of the pipeline is at Vinh, where there are several bulk storage and transshipment areas, and the nearby anchorages can accommodate vessels with drafts up to 15 feet. Several bulk petroleum carriers, petroleum carrying watercraft, and North Vietnam's largest tanker have been sighted near Vinh since the bombing halt. Other potential water entry points, which could govern the location of extensions to the pipeline, are Thanh Hoa, Nam Dinh, or even ultimately Haiphong.

8. Recently constructed petroleum storage and transfer facilities may foretell the location of any future pipeline construction. North of the presently identified pipeline, the North Vietnamese within the past six months have built dispersed petroleum storage sites and transfer facilities at Xuan Loc, Phu Yen, Thanh Boi, Cho Giat, Thanh Hoa, and Dien Noi. South of the pipeline, the North Vietnamese have recently built a storage area near the village of Xom Thon, only ten miles east of Mu Gia Pass on Route 15, are constructing others along Route 137, and are planning another at Minh Cam (see the map).

Advantages of the Pipeline

9. The pipeline would considerably reduce the vulnerability to bombing of North Vietnam's logistical system for petroleum. Its construction cannot be justified on economic grounds even though all of the pipe and equipment of the line is presumably being paid for by North Vietnam's allies. Even if Communist requirements for petroleum in the areas south of the pipeline remain at the recent peak, the pipeline would still be used at less than half its rated capacity, and operating costs are likely to be high.

10. If air attacks were resumed, it would be even more difficult to disrupt the pipeline than other transport modes. The line would be less exposed at river crossings and other chokepoints where rail, water, and truck transport has been particularly vulnerable to air attack. Portions of the pipeline not already buried will eventually be hidden by foliage, and even if located, will be small and extremely difficult to hit. Although saturation bombing of a selected area could damage the system, the pipeline could be quickly repaired or bypassed, and the line's substantial excess capacity could make good petroleum losses and transport delays caused by bomb damage to the system. The pipeline would also be less affected by localized flooding and other severe weather conditions common to North Vietnam and Laos. Particularly widespread flooding, however, such as that resulting from the typhoons in September 1968 which disrupted rail, water, and truck transport in the vicinity of the pipeline for several days, could shut down the line.

11. In addition, the pipeline might free large numbers of trucks otherwise engaged in moving petroleum products. The estimated capacity of the currently identified pipeline -- 1,100 tons per day -- is comparable to the carrying capacity of about 500 trucks. However, the limited number of trucks actually transporting petroleum in the immediate vicinity of the presently identified pipeline and the slight demand for petroleum along likely extensions of the pipeline system would keep savings substantially below 500 trucks.